

IN THE CLAIMS:

1 1. (CURRENTLY AMENDED) A method for a first file server to provide file service
2 operations normally performed by a second file server after the second file server suffers
3 an error condition, the first and second file servers operatively interconnected with a set
4 of clients using a network protocol, the network protocol being free of support for mov-
5 ing a transport address from the second file server to the first file server, the method
6 comprising the steps of:

7 detecting, by the first file server, that the second file server has suffered an error
8 condition;

9 asserting ownership, by the first file server, of a set of storage devices normally
10 owned by the second file server;

11 activating, on the first file server, a secondary data access port for receiving con-
12 nections over a network; and

13 processing, by the first file server, file service operations directed to the secondary
14 data access port from a set of failover clients, the failover clients accessing the first file
15 server by computing a network address associated with the first file server from a first
16 symbolic name, the first symbolic name generated by the failover client from the a sec-
17 ond symbolic name associated with the second file server, whereby failover operation is
18 achieved by the client.

1 2. (ORIGINAL) The method of claim 1 wherein the step of detecting the error condition
2 further comprises the steps of sending, by the second file server, an error message to the
3 first file server.

1 3. (ORIGINAL) The method of claim 1 wherein the step of detecting an error condition
2 further comprises the step of:
3 detecting, by the first file server, a lack of a status signal generated by the second
4 file server.

1 4. (ORIGINAL) The method of claim 1 wherein the secondary data access port is a vir-
2 tual interface discriminator.

1 5. (CANCELLED)

1 6. (PREVIOUSLY PRESENTED) A method for a client to continue to access file ser-
2 vice operations after a first file server has suffered an error condition, the method com-
3 prising the steps of:
4 computing a failover name by appending a set text string to a name of the first file
5 server;
6 resolving the failover name to a network address;
7 connecting to a failover file server using the network address and a predetermined
8 alternate data access port.

1 7. (CURRENTLY AMENDED) The method of claim 5 6 wherein the predetermined al-
2 ternate data access port further comprises a virtual interface discriminator.

1 8. (ORIGINAL) A file server for use in a file server cluster, the file server operatively
2 interconnected with a set of clients using a network protocol, the network protocol being
3 free of support for moving a transport address from a first file server to a second file
4 server, the file server comprising:

5 a cluster interconnect, the cluster interconnect providing a communications link to
6 a partner file server in the file server cluster;

7 a primary data access port for receiving file service operations from file server
8 clients; and

9 a secondary data access port, the secondary data access port only being active
10 when the file server detects that the partner file server has suffered an error condition,
11 wherein the file server processes file service operations received via the secondary data
12 access port to provide file service operations to clients of the partner file server.

1 9. (ORIGINAL) The file server of claim 8 wherein the primary data access port further
2 comprises a virtual interface discriminator.

1 10. (ORIGINAL) The file server of claim 9 wherein the secondary data access port fur-
2 ther comprises a virtual interface discriminator.

1 11. (ORIGINAL) A file server for use in a file server cluster, the file server operatively
2 interconnected with a set of clients using a network protocol, the network protocol being
3 free of support for moving a transport address from a first file server to a second file
4 server, the file server comprising:

5 means for communicating with a partner file server in the file server cluster;

6 means for identifying that the partner file server has suffered an error condition;

7 means asserting ownership of disks normally owned by the partner file server; and

8 means for processing file service operations from clients of the partner file server.

1 12. (ORIGINAL) A computer-readable medium, including program instructions execut-
2 ing on a file server, for providing file service operations normally performed by a failed
3 file server, the program instructions performing the steps of:

4 detecting that the failed file server has suffered an error condition;

5 asserting ownership of a set of storage devices normally owned by the failed file
6 server;

7 activating a secondary data access port for receiving connections over a network;

8 and

9 processing file service operations received by one or more clients over the data
10 access port.

1 13. (CURRENTLY AMENDED) A computer-readable medium, including program in-
2 structions executing one a client, for the client to continue to access file service opera-
3 tions after a first file server has suffered an error condition, the instructions including
4 steps for:

5 computing a failover name by appending a set text string to a name of the first file
6 server;

7 resolving the failover name to a network address; and

8 connecting to a failover file server using the network address and a predetermined
9 alternate data access port.

1 14. (CURRENTLY AMENDED) A method for operating a computer failover system,
2 comprising:

3 executing a client computer program on a client computer, the client computer
4 program communicating with a first file server, the first file server associated with a file
5 server name;

6 computing from the file server name, by a file system process on the client com-
7 puter, communicating with the client computer program, a failover name associated with
8 a failover file server;

9 resolving the failover name to a network address;

10 detecting an error condition; and

11 connecting, in response to detecting the error condition, to a failover file server
12 port having the network address.

1 15. (CURRENTLY AMENDED) The method as in claim 14, further comprising:
2 ~~using a file server name for communicating with the first file server; and~~
3 computing the failover name by modifying the file server name by an alphanu-
4 meric text.

1 16. (CURRENTLY AMENDED) The method as in claim 14, further comprising:
2 computing the failover name by appending the text "backup" to a the file server
3 name used to communicate with the first file server.

1 17. (PREVIOUSLY PRESENTED) The method as in claim 14, further comprising:
2 transmitting the failover name to a distributed naming service to perform the step
3 of resolving the failover name to a network address.

1 18. (PREVIOUSLY PRESENTED) The method as in claim 14, further comprising:
2 using a database program as the client computer program.

1 19. (PREVIOUSLY PRESENTED) The method as in claim 14, wherein the step of de-
2 tecting the error condition further comprises:

3 detecting a lack of a heartbeat signal from a failed file server.

1 20. (PREVIOUSLY PRESENTED) The method as in claim 14, wherein the step of de-
2 tecting the error condition further comprises:

3 transmitting by a failing file server an "I am failing" message.

1 21. (CANCELLED)

1 22. (CURRENTLY AMENDED) A computer failover system, comprising:

2 means for executing a client computer program on a client computer, the client
3 computer program communicating with a first file server, the first file server associated
4 with a file server name;

5 means for computing from the file server name, by a file system process on the
6 client computer, communicating with the client computer program, a failover name asso-
7 ciated with a failover file server;

8 means for resolving the failover name to a network address;

9 means for detecting an error condition; and

10 means for connecting, in response to detecting the error condition, to a failover
11 file server port having the network address.

1 23. (CURRENTLY AMENDED) The system as in claim 22, further comprising:

2 ~~means for using a file server name for communicating with the first file server;~~

3 and

4 means for computing the failover name by modifying the file server name by an
5 alphanumeric text.

1 24. (CURRENTLY AMENDED) The system as in claim 22, further comprising:

2 means for computing the failover name by appending the text “backup” to a the
3 file server name used to communicate with the first file server.

1 25. (PREVIOUSLY PRESENTED) The system as in claim 22, further comprising:

2 means for transmitting the failover name to a distributed naming service to per-
3 form the step of resolving the failover name to a network address.

1 26. (PREVIOUSLY PRESENTED) The system as in claim 22, further comprising:

2 means for using a database program as the client computer program.

1 27. (PREVIOUSLY PRESENTED) The system as in claim 22, further comprising:

2 means for detecting a lack of a heartbeat signal from a failed file server.

1 28. (PREVIOUSLY PRESENTED) The system as in claim 22, further comprising:

2 means for sending, by a failing file server, an error message to the first file server.

1 29. (PREVIOUSLY PRESENTED) The system as in claim 22, further comprising:
2 means for transmitting by the failing file server an "I am failing" message.

1 30. (CURRENTLY AMENDED) A computer failover system, comprising:
2 a client computer having a client computer program executing thereon, the client
3 computer program communicating with a first file server, the first file server associated
4 with a file server name;

5 a file system process on the client computer communicating with the client com-
6 puter program, the file system process computing from the file server name a failover
7 name associated with a failover file server;

8 a port to transmit the failover name to a distributed name server to resolve the
9 failover name to a network address;

10 a port to receive a message reporting an error condition in the first file server; and

11 a file system process to use the failover name and network address to connect, in
12 response to the error condition, to a failover file server port having the network address.

1 31. (CURRENTLY AMENDED) The system as in claim 30, further comprising:

2 a file system process ~~to use a file server name to communicate with the first file~~
3 ~~server, and to compute the failover name by modifying the file server name by an alpha-~~
4 numeric text.

1 32. (CURRENTLY AMENDED) The system as in claim 30, further comprising:
2 a file system process to compute the failover name by appending the text
3 “backup” to a the file server name used to communicate with the first file server.

1 33. (PREVIOUSLY PRESENTED) The system as in claim 30, further comprising:
2 a file system process to transmit the failover name to a distributed naming service
3 to perform the step of resolving the failover name to a network address.

1 34. (PREVIOUSLY PRESENTED) The system as in claim 30, further comprising:
2 the client computer program is a database program.

1 35. (PREVIOUSLY PRESENTED) The system as in claim 30, further comprising:
2 means for detecting a lack of a heartbeat signal from a failed file server.

1 36. (PREVIOUSLY PRESENTED) The system as in claim 30, further comprising:
2 means for sending, by a failing file server, an error message to the first file server.

1 37. (PREVIOUSLY PRESENTED) The system as in claim 30, further comprising:
2 means for transmitting by the failing file server an “I am failing” message.

1 38. (CURRENTLY AMENDED) A computer readable media, comprising:
2 said computer readable media containing instructions for execution on a processor
3 for the practice of a method for operating a computer failover system, the method having
4 the steps of,
5 executing a client computer program on a client computer, the client computer
6 program communicating with a first file server, the first file server associated with a file
7 server name;
8 computing from the file server name, by a file system process on the client com-
9 puter communicating with the client computer program, a failover name associated with a
10 failover file server;
11 resolving the failover name to a network address;
12 detecting an error condition; and
13 connecting, in response to detecting the error condition, to a failover file server
14 port having the network address.

1 39. (CANCELLED)

1 40. (NEW) A client interconnected to a first file server and to a second file server, the
2 client comprising:
3 means for detecting the first file server has suffered an error condition;

4 means for computing a failover name by appending a set text string to a name of
5 the first file server;

6 means for resolving the failover name to a network address;

7 means connecting to a failover file server using the network address and a prede-
8 termined alternate data access port.

1 41. (NEW) The client of claim 40 wherein the predetermined alternate data access port
2 further comprises a virtual interface discriminator.

1 42. (NEW) A method for a first file server to provide file service operations normally
2 performed by a second file server after the second file server suffers an error condition,
3 the method comprising:

4 detecting, by the first file server, that the second file server has suffered an error
5 condition; and

6 processing, by the first file server, file service operations from a set of failover
7 clients, the failover clients accessing the first file server by computing a network address
8 associated with the first file server from a first symbolic name, the first symbolic name
9 generated by appending a set text string to a second symbolic name of the second file
10 server.

1 43. (NEW) The method of claim 42 further comprising:
2 activating, on the first file server, a secondary data access port for receiving con-
3 nections over a network; and
4 servicing file service operations from the set of failover clients using the secon-
5 dary data access port.

1 44. (NEW) The method of claim 42 further comprising:
2 asserting ownership, by the first file server, of a set of storage devices normally
3 owned by the second file server.

1 45. (NEW) The method of claim 42 further comprising:
2 transmitting the first symbolic name to a distributed naming service to compute
3 the network address.

1 46. (NEW) The method as in claim 42, wherein the step of detecting further comprises:
2 detecting a lack of a heartbeat signal from the second file server.

1 47. (NEW) The method as in claim 42, wherein the step of detecting further comprises:

2 transmitting by the second file server a message indicating that failover should
3 begin.

1 48. (NEW) A computer failover system allowing a first file server to provide file service
2 operations normally performed by a second file server after the second file server suffers
3 an error condition, the system comprising:

4 means for detecting, by the first file server, that the second file server has suffered
5 an error condition; and

6 means for processing, by the first file server, file service operations from a set of
7 failover clients, the failover clients accessing the first file server by computing a network
8 address associated with the first file server from a first symbolic name, the first symbolic
9 name generated by appending a set text string to a second symbolic name of the second
10 file server.

11 49. (NEW) A computer-readable medium comprising program instructions executing
12 for execution on a processor for the practice of a method for operating a computer
13 failover system, the method having the steps of:

14 detecting, by a first file server, that a second file server has suffered an error con-
15 dition; and

16 processing, by the first file server, file service operations from a set of failover
17 clients, the failover clients accessing the first file server by computing a network address
18 associated with the first file server from a first symbolic name, the first symbolic name

- 1 generated by appending a set text string to a second symbolic name of the second file
- 2 server.